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**Yoshihisa Matsukawa** and **Jun Mitani\*** (mitani@cs.tsukuba.ac.jp). *Verification of flat-foldability of crease patterns on the 45 degree grid system.* Preliminary report.

Crease patterns of several well-known fundamental shapes used in origami design are within 45 degrees origami grid system. The grid system is easily creased on a square, and has flexibility for making variety of shapes. Therefore it is commonly used for origami framework. We enumerated all possible formal crease patterns and their folded shapes in 4x4 grids by using a computer, and found 259,659,330 and 13,451 cases respectively. Further, we verified all 13,451 shapes are able to be folded into flat without any self-intersections. Some formal crease patterns which are not flat-foldable due to self-intersections were also found. (Received September 10, 2015)